

Applicants : Paul V. Werme *et al.*
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Filed : May 24, 2001
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Amendments to the Specification:

Please replace the Abstract with the attached replacement Abstract.

Please replace the paragraph at page 6, lines 15-22 in the specification (corresponding to the API definition immediately following paragraph [0032] of U.S. Patent Application Publication 2003/0167270) with the following rewritten paragraph:

A set of subroutines or functions that a program, or *application*, can call to invoke ~~some~~ some functionality contained in another software or hardware component. The Windows API consists of more than 1,000 functions that programs written in C, C++, Pascal, and other languages can call to create windows, open files, and perform other essential tasks. An application that wants to display an on-screen message can call Windows' *MessageBox* API function, for example.

Please replace the paragraphs at page 46, lines 1-27 in the specification (corresponding to paragraphs [0226] – [0228] of U.S. Patent Application Publication 2003/0167270) with the following rewritten paragraphs:

The ~~Program-Program~~ Program-Program Control function FG50 also receives periodic heartbeat messages, e.g., once per second, from each of the Program Control Agents FG52A-FG52N, as discussed above. If Fault Detection has been enabled at the Program Control Displays FG54A-FG54N, if three consecutive heartbeat messages from an Agent, e.g., FG52A, are missed, the host that the agent is running on is declared down and all linked functions, including the Resource Manager FG42 and the Displays FG54A-FG54N are notified.

As mentioned above, the ~~Program-Program~~ Program-Program Control function FG50 sends out periodic application status updates as well as immediate notification when applications are started up, are shutdown, or fail. These notifications are sent out to all linked functions.

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It should be noted that the ~~Program-Program~~ Control function FG50 uses the same message traffic and internal processing for handling application startup and shutdown orders received from either the Resource Manager FG42 or from the Program Control Displays FG54A-FG54N. However, if a startup order received from one of the Program Control Displays FG54A-FG54N indicates that the Resource Manager FG42 should determine where to run the application, a request to allocate the application is sent to the Resource Manager FG42. When no response is received from the Resource Manager FG42 within a predetermined timeout period, the ~~Program-Program~~ Control function FG50 will automatically start the application on the default host. Moreover, when an application startup cannot proceed due to an unfulfilled application startup dependency, a request will be made to the Resource Manager FG42 to attempt to resolve the dependency. If the Resource Manager FG42 either cannot resolve the dependency or no response is received within a predetermined timeout period, the application startup will fail, and a "dependency failed" indication will be sent to the Display. It will be appreciated that this will cause the application status to be displayed in, for example, yellow and post an alert to the Alert window on one of the Program Control Displays FG54A-FG54N.

Please replace the paragraphs at page 47, line 28 – page 48, line 7 in the specification (corresponding to paragraph [0244] of U.S. Patent Application Publication 2003/0167270) with the following rewritten paragraph:

It will be appreciated from FIG. 2 that multiple Program Control Displays FG54A-FG54N advantageously can be run simultaneously. If this is done, any configuration change actions will be reflected on all the displays. Whenever application stop or start actions are taken by the display operator, a message is sent to the ~~Program-Program~~ Control function FG50 which is responsible for enacting the start or stop action. The Program Control function FG50 also sends indications of any status changes to the Program Control Displays FG54A-FG54N as soon as the status changes are seen. In addition, periodic status updates are also sent to the Program Control Displays FG54A-FG54M.

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Please replace the paragraphs at page 49, lines 7-9 in the specification (corresponding to paragraph [0251] of U.S. Patent Application Publication 2003/0167270) with the following rewritten paragraph:

The RM_Start flag, which identifies whether the the Resource Manager should be queried at run-time to determine what host the application should be started on. The valid values are "0" for "NO" and "1" for "YES".

Please replace the paragraphs at page 52, lines 12-17 in the specification (corresponding to paragraph [0270] of U.S. Patent Application Publication 2003/0167270) with the following rewritten paragraph:

FIGS. 10 and 11 are screen captures of the Graph Tool Instrumentation Displays FG69A-FG69N, which depict user-configurable displays capable of ~~receiveing~~ receiving data via standardized message formats and open interfaces. The Graph Tool Displays FG69A-FG69N allow the operator to select and configure various display widgets (line graphs, bar charts, pie charts, meters, and text boxes) to build a desired display layout. Data sources for driving the widgets can also be selected interactively.

Please replace the paragraphs at page 60, lines 9-22 in the specification (corresponding to paragraph [0332] of U.S. Patent Application Publication 2003/0167270) with the following rewritten paragraph:

It should also be noted that the Resource Manager FG42 sends application system and hardware system readiness and system (mission) priority information to the Readiness Broker, which is a translator ~~withing~~ within the Readiness Display FG66 and to the Globus Broker (another Broker (not shown)). The Readiness Broker is responsible for driving a GUI/display FG66, which shows the current readiness data and allows the system (mission) priorities to be changed and sent back to the Resource Manager FG42. The Globus Broker provides basically the same functionality except that only a high-level subset of the readiness data provided to the

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Readiness Broker is provided to the Globus Broker. The readiness information sent to the Readiness Broker consists of readiness values for each application, application subsystem, and application system defined in the System Specification Files FG32. The scores advantageously can be based on the status (up/down) of the applications and the percentage of potential copies of scalable applications that are currently running. Host and network readiness scores are determined based on the host loads and host fitness scores received from the Hardware Broker FG40.

Please replace the paragraphs at page 96, lines 22-26 in the specification (corresponding to paragraph [0463] of U.S. Patent Application Publication 2003/0167270) with the following rewritten paragraph:

Table III provides a listing of the ~~Appendices~~ Appendices included for all purposes in the application. It will be noted that the majority of the listed ~~Appendices~~ Appendices are provided on the CD-ROM filed concurrently with the application. In addition, the CD-ROM also includes the source code listing for the Resource Management Architecture according to the present invention.